

Quarterly Report
Covering April 1, 2006 to June 30, 2006
Submitted July 6, 2006

Project Title

Fish Passage in Montana Culverts Phase II – Passage Goals

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Introduction

This progress report covers work completed between April 1, 2006 and June 30, 2006. Work on the project during this period has been entirely devoted to the collection of field data.

Project Objective

Culverts are a common and often cost effective means of providing transportation intersections with naturally occurring streams or rivers. Fish passage and fish habitat considerations are now typical components of the planning and design of waterway crossings. Many culverts in Montana span streams that support diverse fisheries. The health of these fisheries is an essential element of a recreational industry that draws hundreds of thousands of visitors to Montana annually. Transportation system planners, designers and managers recognize that fish passage through Montana's culverts is a concern. However, there is much contention concerning the impact that a culvert can have on a fishery. Recent basin-wide studies in Montana (Phase I of this project - final report in November 2004) indicate that the tools that some planners and designers promote for forecasting fish passage concerns may be overly conservative. This is

reflected in the diversity of fish passage goals that are being considered by state agencies in the Northwest. Some managers contend that all culverts should pass all fish at all times, whereas others suggest that this is an unrealistic criterion, particularly during high flow events. Which species, life stages, and how many individuals must have fish passage access for how long, are questions that are often brought forward during discussions on the design and retrofitting of culverts to accommodate fish passage concerns. ***The problem is that for fish species and settings in Montana, the timing and number of fish that must pass a culvert to maintain viable species diversity in the watershed is unknown.***

Progress

This spring was a wild one from a hydrologic standpoint, and much time was devoted to maintaining the antennas, data loggers and traps in the field. With normal snow pack and some warm temperatures in May and early June, the snowmelt runoff was enough to cause some problems with the equipment. Then in mid to late June some flashy thunderstorms moved some large woody debris through the system that snagged a few antenna wires. All the field equipment has been repaired, though, and things are now proceeding as planned. Fortunately, the antennas were only down during a short time period when not many tagged fish were in the system (between the rainbow and cutthroat spawning runs).

The cutthroat run occurred as expected on the falling limb of the spring hydrograph, and more than 85 fish were tagged and returned to the system. The rainbow trout that were tagged early in spring have been recorded moving through the system, even with periodic antenna problems due to the high flows.

Dr. Barber, now at the University of Wyoming, demonstrated a statistical model to the working group in late May. Preliminary results with the limited fish numbers from 2005 look promising. We may fine-tune the model some before we get the 2006 data loaded in, but it looks like we have a good predictive model for passage success rate per attempt as a function of many independent variables.

We are working on the experimental design for electrofishing the reaches of the system upstream of all the culverts. We want to get a better handle on the species and size characteristics in that reach as compared to the fish that reside in the Yellowstone River and move into the project area to spawn and then return to the river shortly thereafter. That sampling will likely take place in late summer after the Yellowstone residents have left the system.

Budget

Expenditures for this cycle are largely a result of stipends. The planned and actual expenditures deviate slightly due to a delay in June stipend charges to the grant. June stipends are, because of the change in fiscal year on June 30, applied in July, then

retroactively moved back to June later. This will be reflected in the July-September quarterly report.

